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EXAMINER

BETIT, JACOB F

ART UNIT

PAPER NUMBER

2175

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

7

Office Action Summary

Application No.

09/988,853

Applicant(s)

TELOH ET AL.

Examiner

Jacob F. Betit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/31/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DOV POPOVICI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

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DETAILED ACTION

Remarks

1. In response to communications filed on 31 March 2004, claims 8 and 19 are amended per applicant's request. Claims 1-51 are presently pending in the application.
2. After carefully considering the claims and the applicants arguments to the rejections, the rejection made for claims 6, 12, 18, 31, and 43, made under 35 U.S.C. 112, first paragraph, are hereby withdrawn.

Drawings

3. The corrections to the drawings (figures 2 and 3) submitted on 31 March 2004 are approved by the examiner.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 6-10, 12-16, 18, 20-23, 25-29, 31-35, 37-41, 43-46, and 48-50 are rejected under 35 U.S.C. 102(e) as being anticipated by Sicola et al. (U.S. patent No. 6,629,264).

As to claim 1, Sicola et al. teaches in a storage network (see column 7, lines 1-11), a method for replicating data in the storage network (see column 1, lines 5-10), the method comprising the steps of:

identifying to a first data replication facility at a first programmable electronic device in the storage network a first structure and a second structure held by a storage device locally accessible to the first programmable electronic device (see abstract, where “storage device” is read on “data storage array”, and an array holds two or more storage structures);

instructing the first data replication facility to logically group the first structure and the second structure from the storage device to create a group (see column 20, lines 38-55, where “group” is read on “set”);

generating a replica of the group at the first data replication facility (see column 8, line 52 through column 9, line 7); and

forwarding the replica in accordance with a communication protocol from the first data replication facility at the first programmable electronic device to a second data replication facility at a second programmable electronic device in the storage network for storage by a second storage device (see column 6, lines 1-13, and see column 9, lines 1-5).

As to claim 8, Sicola et al. teaches a method for replicating data (see column 1, lines 6-10) in a storage network to update one or more data structures of a remote storage device (see column 6, line 66 through column 7, line 12), the method comprising the steps of:

instructing a first data replication facility of a first electronic device in the storage

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network to logically associate a first data structure and a second data structure held by a locally accessible storage device, wherein the logical association defines a group (see abstract and column 20, lines 38-55, where “storage device” is read on “ data storage array, an array holds two or more storage structures, and “group” is read on “set”);

generating a replica of the first data structure and the second data structure as the group (see column 8, line 52 through column 9, line 7); and

outputting the replica in accordance with a data communications protocol from the first replication facility of the first electronic device to a second replication facility of a second electronic device in the storage network to update the one or more data structures of the remote storage device (see column 6, lines 1-13, and see column 9, lines 1-5).

As to claim 13, Sicola et al. teaches a readable medium holding programmable electronic device readable instructions (see column 9, lines 10-34, where “programmable electronic device readable instructions” is read on “software” and it is well know in the art that software is stored on a readable medium) for executing a method for replicating data in a storage network (see column 1, lines 5-10), the method comprising the steps of:

identifying to a first data replication facility at a first programmable electronic device in the storage network a first structure and a second structure held by a storage device locally accessible to the first programmable electronic device (see abstract, where “storage device” is read on “data storage array”, and an array holds two or more storage structures);

instructing the first data replication facility to group the first structure and the second structure from the storage device (see column 20, lines 38-55, where “group” is read on “set”);

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generating a replica of the first structure and the second structure as a group at the first data replication facility (see column 8, line 52 through column 9, line 7); and

asserting the replica in accordance with a communication protocol from the first data replication facility at the first programmable electronic device to a second data replication facility at a second programmable electronic device in the storage network for storage by a second storage device locally accessible to the second programmable electronic device (see column 6, lines 1-13, and see column 9, lines 1-5).

As to claims 2 and 14, Sicola et al. teaches further comprising the step of, forwarding from the first data replication facility at the first Programmable electronic device to the second data replication facility at the second programmable electronic device information identifying a storage location at the second storage device at which to store the replica (see column 20, lines 41-44).

As to claims 3 and 15, Sicola et al. teaches wherein the first programmable electronic device forwards the replica to the second programmable electronic device in a synchronous manner (see column 11, line 27 through column 12, line 3).

As to claims 4 and 16, Sicola et al. teaches wherein the first programmable electronic device forwards the replica to the second programmable electronic device in an asynchronous manner (see column 12, line 6 through column 13, line 41).

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As to claims 6, 12, and 18, Sicola et al. teaches wherein the first programmable electronic device and the second programmable electronic device in the storage network operate without a volume manager facility (There is no mention of a “volume manager facility” in the disclosed specification of Sicola et al., therefore, it is assumed that Sicola et al. do not use a “volume manager facility”).

As to claims 7 and 20, Sicola et al. teaches wherein the first structure comprises a first logical volume and the second structure comprises a second logical volume (see column 3, lines 18-26).

As to claim 9, Sicola et al. teaches further comprising the steps of, packaging with the replica, information identifying one or more storage locations for storage of the replica on the remote storage device (see column 20, lines 41-44).

As to claim 10, Sicola et al. teaches further comprising the steps of, instructing the first data replication facility to preserve a write ordering of the first data structure and the second data structure in the group (see column 12, lines 49-50).

As to claim 21, Sicola et al. teaches, in a storage network (see column 7, lines 1-11), a method to create a replica of selected data in the storage network (see column 1, lines 5-10), the method comprising the steps of:

instructing a first data replication facility at a first electronic device in the storage

network to track changes to one or more storage locations of a first storage medium that correspond to the selected data (see column 12, lines 17-34);

instructing the first data replication facility to generate the replica of the selected data based on the tracked changes to the one or more locations of the first storage medium (see column 12, lines 47-59);

placing the replica of the selected data in a data structure (see column 12, lines 50-52);
and

forwarding the replica of the selected data in accordance with a communication protocol from the data structure to a second data replication facility at a second electronic device in the storage network for storage of the replica on a second storage medium by the second electronic device (see column 12, lines 47-50).

As to claim 33, Sicola et al. teaches, a readable medium holding programmable electronic device readable instructions (see column 9, lines 10-34, where “programmable electronic device readable instructions” is read on “software” and it is well known in the art that software is stored on a readable medium) for executing a method to create a replica of selected data in a storage network (see column 1, lines 5-10), the method comprising the steps of:

instructing a first data replication facility at a first programmable electronic device in the network to track changes to one or more areas of a first storage device in communication with the first programmable electronic device, wherein the one or more areas correspond to the selected data (see column 12, lines 17-34);

instructing the first data replication facility to generate the replica of the selected data

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based on the tracked changes to the one or more areas of the first storage device (see column 12, lines 47-59);

placing the replica of the selected data in a data structure (see column 12, lines 50-52);
and

forwarding the replica of the selected data in accordance with a communication protocol from the data structure to a second data replication facility at a second programmable electronic device in the storage network for storage of the replica on a second storage device in communication with the second programmable electronic device (see column 12, lines 47-50).

As to claims 22 and 34, Sicola et al. teaches further comprising the step of, sending an instruction from the first data replication facility at the first electronic device to the second data replication facility at the second electronic device to initiate a process for receiving and storing the replica of the selected data (see column 9, lines 21-34, where it is inherent that the PPRC manager must send an instruction to the second device in order to initiate the connection and heartbeat with the remote controller).

As to claims 23 and 35, Sicola et al. teaches further comprising the step of, halting the generation of the replica of the selected data until the replica held by the data structure is forwarded from the data structure to the second data replication facility at the second electronic device in the storage network (see column 14, line 33 through column 15, line 58).

As to claims 25 and 37, Sicola et al. teaches further comprising the step of, identifying to

the first data replication facility at the first electronic device in the storage network the selected data held by the first storage medium in communication with the first electronic device (see column 20, lines 38-55).

As to claims 26 and 38, Sicola et al. teaches wherein the data structure comprises a queue (see column 14, lines 45-58, where “queue” is read on “log”).

As to claims 27 and 39, Sicola et al. teaches wherein the first electronic device performs the forwarding of the replica of the selected data from the data structure to the second data replication facility at the second electronic device in a first in first out (FIFO) manner (see column 14, lines 59-65, where “FIFO” is read on “in order”).

As to claims 28 and 40, Sicola et al. teaches wherein the first electronic device performs the forwarding of the replica of the selected data from the data structure to the second data replication facility at the second electronic device in a synchronous manner (see column 11, line 27 through column 12, 3).

As to claims 29 and 41, Sicola et al. teaches wherein the first electronic device performs the forwarding of the replica of the related data from the data structure to the second data replication facility of the second electronic device in an asynchronous manner (see column 12, line 5 through column 13, line 41).

As to claims 31 and 43, Sicola et al. teaches wherein the first electronic device and the second electronic device operate without a volume manager facility (There is no mention of a “volume manager facility” in the disclosed specification of Sicola et al., therefore, it is assumed that Sicola et al. do not use a “volume manager facility”).

As to claims 32 and 44, Sicola et al. teaches wherein the one or more locations of the first storage medium comprise one of a track, a sector, a logical volume and a logical offset into the first storage medium (see column 19, line 58 through column 20, line 4).

As to claim 45, Sicola et al. teaches a method for replicating data (see column 1, lines 6-10) in a distributed network to update a remote storage device with data from a local storage device (see column 6, line 66 through column 7, line 12), the method comprising the steps of:

instructing a first data replication facility of a first electronic device in the distributed network to track one or more locations of a local storage device that correspond to one or more identified volumes (see column 12, lines 17-34);

grouping each of the one or more identified volumes into a group by the first data replication facility (see column 20, lines 38-55, where “group” is read on “set”);

generating a replica of the group at the first data replication facility (see column 12, lines 47-59); and

asserting the replica in accordance with a communication protocol toward a second replication facility of a second electronic device in the distributed network to update the remote storage device (see column 12, lines 47-50).

As to claim 46, Sicola et al. teaches further comprising the step of, sending a command from the first data replication facility to the second data replication facility of the second electronic device to initiate receipt of the replica (see column 9, lines 21-34, where it is inherent that the PPRC manager must send a command to the second device in order to initiate the connection and heartbeat with the remote controller).

As to claims 48, Sicola et al. teaches further comprising the step of, sending from the second data replication facility to the first data replication facility an indication that the update to the remote storage device completed (see column 11, lines 60-63).

As to claim 49, Sicola et al. teaches further comprising the step of, writing the replica to a local queue for temporary storage before the asserting of the replica in accordance with the communication protocol toward the second replication facility of the second computer occurs (see column 12, lines 18-34).

As to claim 50, Sicola et al. teaches further comprising the step of, identifying to the first data replication facility of the first electronic device in the distributed network the one or more volumes of the data for the replicating of data to update the remote storage device (see column 20, lines 38-55).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 11, 17, 19, 30, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sicola et al. (U.S. patent No. 6,629,264 B1) in view of Wahl et al. (U.S. patent No. 6,324,654 B1).

As to claims 5, 11, and 17 Sicola et al. does not teach wherein the communication protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite.

Wahl et al. teaches a computer network remote data mirroring system that writes update data both to a local data device and to a remote system (see abstract) in which he teaches wherein the communication protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite (see column 5, lines 14-38).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. to include wherein the communication protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. by the teachings of Wahl et al. because wherein the communication protocol comprises the Transmission Control Protocol/Internet

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Protocol (TCP/IP) protocol suite would allow the transfer of data for the data replication system to go over common networks such as LANs, the Internet, and other WANs.

As to claim 19, Sicola et al. does not teach wherein the first, structure comprises a first group of records and second structure comprises a second group of records.

Wahl et al. teaches wherein the first, structure comprises a first group of records and second structure comprises a second group of records (see abstract and column 12, lines 38, where it is understood in the art that a database contains a plurality of records, and if it is spread across several disks each disk with contain a group of the database records).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. to include wherein the first, structure comprises a first group of records and second structure comprises a second group of records.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. by the teachings of Wahl et al. because wherein the first, structure comprises a first group of records and second structure comprises a second group of records would ensure chronological coherency to be maintained on the mirror devices (see Wahl et al., column 12, lines 15-28).

As to claims 30 and 42, Sicola et al. does not teach wherein the communication protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite.

Wahl et al. teaches wherein the communication protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite (see column 5, lines 14-38).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. to include wherein the communication protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. by the teachings of Wahl et al. because wherein the communication protocol comprises the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite would allow the transfer of data for the data replication system to go over common networks such as LANs, the Internet, and other WANs.

8. Claims 24, 36, 47, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sicola et al. (U.S. patent No. 6,629,264 B1) in view of Gagne et al. (U.S. patent No. 6,209,002 B1).

As to claims 24 and 36, Sicola et al. does not teach further comprising the step of, packaging with the replica of the selected data information that identifies a storage location for storage of the replica of the selected data on the second storage medium.

Gagne et al. teaches a data storage facility that mirrors data onto at least three different remote sites (see abstract) in which he teaches further comprising the step of, packaging with the replica of the selected data information that identifies a storage location for storage of the replica of the selected data on the second storage medium (see column 8, lines 22-52).

Therefore, it would have been obvious to a person having ordinary skill in the art at the

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time the invention was made to have modified Sicola et al. to include further comprising the step of, packaging with the replica of the selected data information that identifies a storage location for storage of the replica of the selected data on the second storage medium.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. by the teachings of Gagne et al. because further comprising the step of, packaging with the replica of the selected data information that identifies a storage location for storage of the replica of the selected data on the second storage medium would enable the copy program to transfer data to the appropriate destination (see Gagne et al., column 8, lines 30-32).

As to claim 47, Sicola et al. does not teach further comprising the step of, packaging with the replica information that indicates a storage location for each volume in the replica for storage on the remote storage device.

Gagne et al. teaches further comprising the step of, packaging with the replica information that indicates a storage location for each volume in the replica for storage on the remote storage device (see column 8, lines 22-52).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. to include further comprising the step of, packaging with the replica information that indicates a storage location for each volume in the replica for storage on the remote storage device.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Sicola et al. by the teachings of Gagne et al. because

further comprising the step of, packaging with the replica information that indicates a storage location for each volume in the replica for storage on the remote storage device would (see column 8, lines 22-52).

As to claim 51, Sicola et al. as modified, teaches wherein the information comprises one of a volume name and a volume number (see Sicola et al., column 12, lines 37-55).

Response to Arguments

9. Applicant's arguments filed on 31 March 2004 with respect to rejected claims 1-51, in view of the cited references, have been fully considered but they are not found to be persuasive:

In response to the applicant's arguments that "Sicola does not perform the steps of logically grouping a first and second data structure held by a local storage device as a group and generating a replica of the group at the first data replication facility", the arguments have been fully considered, but they are not deemed persuasive because in column 20, lines 38-55, Sicola et al. teaches establishing an association set, "S", made of n logical units on the same system. In lines 20-22, he states that he makes these sets to ensure that multiple units are consistent with each other. In column 20, lines 45-47, Sicola et al. states that each member of an association set must also be a member of a remote copy set. In column 8, line 52, through column 9, line 7, Sicola et al. teaches that these remote copy sets are used to keep a constant replica of each other which causes the local array to send any writes to a local volume over to its replicated remote volume. This means that a remote replica is constantly being generated as data is being written

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to and changed on the local volume. According to Sicola et al.'s teachings if there are two logical units, S1 and S2, that belong to an association set, these two units would be logically grouped together constantly generating a remote replica as the units are written to.

In response to the applicant's arguments that "Sicola does not disclose a logical association between a first data structure and a second data structure held by a locally accessible storage device" and "Sicola does not disclose generating a replica of the first data structure and the second data structure as a group", the arguments have been considered, but they are not deemed persuasive because Sicola et al. teaches an association between local volumes in column 20, lines 38-55. These associations are called association sets, which make these associations so that multiple units will be consistent with each other to ensure an application's data sets remain constant (see Sicola et al., column 20, lines 20-21). Sicola et al. teaches grouping each volume in an association set with a remote volume in order to constantly generate a remote replica of each of the local volumes of that association set (see Sicola et al., column 20, lines 45-55).

In response to the applicant's arguments that Sicola et al. does not teach "a step of instructing a first data application facility at a first electronic device in the storage network to track changes to one or more storage locations of a first storage medium that correspond to the selected data" and "a step of instructing the first data replication facility to generate a replica of the selected data based on the track[ed] changes to the one or more locations of the first storage medium" and the applicant's arguments that "Sicola does not rely on the micro-log to generate a replica of the selected data based on track[ed] changes to one or more locations of the storage

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medium”, the arguments have been fully considered, but they are not deemed persuasive because as was indicated by the applicant “the cited passage from column 12 of Sicola indicates that Sicola logs every write so that in the event of error ...the system of Sicola reads the micro-log in order to complete a remote copy operation”. Although Sicola et al. is not always generating a replica of the selected data based on the tracked changes, only one case of Sicola et al. needs to fulfill these limitations in order to make a rejection under 35 U.S.C.102(e) appropriate. Since in the case when the controller crashes with outstanding remote copies the micro-log is used to make the remote replica the requirements of 35 U.S.C. 102(e) are satisfied.

In response to the applicant’s arguments that “Sicola does not disclose the steps of instructing a first data replication facility of a first electronic device in the distributed network to track one or more locations of the local storage device that corresponds to one or more identified volumes and grouping each of the one or more identified volumes into a group by the first data replication facility”, the arguments have been considered, but are not deemed persuasive because in the case of only one volume a group of one volume would be created. This case would be the same as creating an association set with only one volume in it. The one volume in the association set would have another volume in its remote copy set, which would be its constantly generated replica (see Sicola et al., column 20, lines 38-55). Therefore, Sicola et al. teaches these limitations.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob F. Betit whose telephone number is (703) 305-3735. The examiner can normally be reached on Monday through Friday 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on (703) 305-3830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jfb
18 Jun 2004



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SUPERVISORY PATENT EXAMINER
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